

Abstract

A chemical apparatus and method for the generation of high purity phosphine gas or another gas used in the production and doping of semiconductors is described. The preferred apparatus includes a means for generating the gas with microwave radiation, a means for controlling the production rate, means for purifying the product gas, and a means for controlled blending of the gas with a diluent gas to a desired delivery composition. By these means, gas of sufficient purity, at the proper pressure, and in the required volume, is generated for direct introduction into a process in which semiconductors are manufactured and doped.